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14. ABSTRACT Crime in Nigeria threatens to destabilize the most populous and strategically important country in Africa. Using theories of crime and exploratory factor analysis (a statistical technique for data reduction), this paper develops models of crimes against persons and property in Nigeria to investigate the social, economic, cultural, environmental, security, and demographic factors correlated with disorder. Further critique of the government's response suggests better methods to isolate criminals and increase popular support for public safety and Nigerian police while denying extremists the chance to offer an alternative form of internal security.				
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Crime in Nigeria: An Exploratory Analysis

by

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The opinions and analysis in this paper are the author's own and do not reflect any position of the Naval War College, Department of the Navy, Department of the Army, or Department of Defense. Please forward any questions or comments to eugenia.guilmartin@us.army.mil. Data is available upon request.

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02 November 2012

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Abstract

Crime in Nigeria threatens to destabilize the most populous and strategically important country in Africa. Using theories of crime and exploratory factor analysis (a statistical technique for data reduction), this paper develops models of crimes against persons and property in Nigeria to investigate the social, economic, cultural, environmental, security, and demographic factors correlated with disorder. Further critique of the government's response suggests better methods to isolate criminals and increase popular support for public safety and Nigerian police while denying extremists the chance to offer an alternative form of internal security.

When the Sovereign Power ceaseth, Crime also ceaseth: for where there is no such Power, there is no protection to be had from the Law; and therefore every one may protect himself by his own power.

- Thomas Hobbes, Leviathan

Not to know is bad; not to wish to know is worse.

- Nigerian Proverb

Crime in Nigeria: Introduction

Nigerian security is tremendously important to Africa and the United States. Two realities underscore this claim: one in five Africans live in Nigeria and the country is home to more Muslims than Egypt. Despite enormous resource and human potential, Nigeria also has a history of corrupt government that tarnishes its reputation worldwide. Corruption hit its high point in the late 1990s when the nation's military leader, General Abacha, was accused of stealing between 4-5 Billion U.S. Dollars. This corruption undoubtedly resulted in Nigeria being labeled a risky investment. As Nigerian social scientists Drs. Adegbe and Fakile note, "Law and order collapsed and the rule of law took a back seat in the face of tyranny, despotism and impunity."¹ When the U.S. AFRICOM Commander, General Ham, made his first visit to Nigeria in 2011, he specifically addressed his concerns on transnational crime, terrorism and extremism stating, "Why is the United States military specifically interested in Nigeria? And I would say it's simply because our two nations share a great commonality of security challenges.

¹Folajimi Adegbe and Adeniran Fakile, "Economic and Financial Crime in Nigeria: Forensic Accounting as Antidote," *British Journal of Arts and Social Sciences* 6, no.1 (2012) 38.

As we look to the future and we look at those things that can undermine security in your country and in mine, we share a lot in common."²

While the United States government is most concerned about Islamic extremism in Nigeria, most Americans think of crime in Nigeria in terms of the contagion of phishing scams and other forms of fraud that were rampant online in the early 2000s. Neither of these illegal activities, however, affects the ordinary Nigerian as much as murder, rape, assault, and even cell phone theft. Crimes vary across the country and result in varying levels of public confidence in their police, courts, and government. What factors are related to crime in Nigeria? And what can we learn about conditions in Nigeria from studying them? Preliminary research suggests that crime in Nigeria is related to culture, poverty, policing, and socioeconomics. Furthermore, the public's perception of safety is more important than any objective measure of victimization and points to a potential competition between the government and extremists to protect the people.

Nigeria is a dynamic and diverse country. In order to best understand crime in Nigeria, one should explore the different cleavages, cultures and conditions within the country to see how they relate to different rates of violence, disorder, and safety among the population. In order to better understand Nigeria as a whole, one must first understand the 36 states and capital of Abuja. This study will explore social, demographic, cultural, environmental, economic, and security variables as well as different crimes in Nigeria. Following this discussion, the paper will review theories of

² U.S. AFRICOM Public Affairs, "Commander of US African Command makes first visit to Nigeria," 22 August 2011, (transcript), accessed 24 October 2012, <http://www.africom.mil/getArticle.asp?art=7103&lang=0>.

crime. After conducting statistical tests and discussing preliminary findings, the paper will conclude with discussions for future research and policy implications.

Facets of Crime & Exploratory Method

The study of crime in Nigeria is critically important to Nigerian people. Professor Etannibi E.O. Alemika says, "Nigeria has a crime problem because the country's crimes are serious and of diverse kinds, while crime control institutions are corrupt, oppressive and ineffective."³ Violence against the people, coupled with a failure of the state to protect them, is a recipe for unrest. Alemika explains this impact, "Security is the most fundamental need of human beings. There are several interrelated domains of security -- physical, emotional, social, economic and political. However, physical security -- protection from threat or act of violence by individuals, groups or the state is a precondition for human existence and orderly society."⁴ Alemika joined with other Nigerian social scientists supporting The Nigerian Centre for Law Enforcement Education (CLEEN) to survey over 10, 200 respondents from all states in their own language.

Several of the variables from the CLEEN study are worth further exploration. To begin with, it is important to explore both crimes against people (e.g., murder, assault, attempted murder) and crimes against property (burglary, robbery, theft). Next, rape and sexual assault is a special category of crime warranting study. Rapists target the most vulnerable populations in a society, impacting honor and psychological health even

³ Etannibi E.O. Alemika, "Security, Criminal Justice and Criminal Victimization," in Etannibi E.O. Alemika and Innocent C. Chukwuma, eds, "Crime Victimization, Safety, and Policing in Nigeria," 2011, 13.

⁴ Alemika, 12.

beyond the physical harm they inflict. Since rape carries a huge stigma, the researchers attempted to capture this phenomenon by not only asking if a respondent had been raped (the variable named *personal rape*, see Annex B) but also if a member of the household had been attacked (the variable named *rape*, see Annex B). Both of these variables will be explored. On the topic of crimes against property, Nigerians are currently reporting an epidemic of cell phone thefts. While this crime would not meet thresholds for reporting by the U.S. Department of Justice, by comparison, it appears to be a huge concern to Nigerians. Most importantly, the study captures broader measures of whether Nigerians have been victimized over a three year period and whether they feel safe during the day, at night, and in their neighborhoods. Annex B defines these crime variables in greater detail. Analyzing the correlations of these different measures of crime can suggest which is most central to Nigerians' perception of lawlessness and lack of safety.

Factor analysis is a useful method to explore different social, political and economic variables when there is a large amount of data but no existing empirical research to explain which variables are most important and how they may fit together. Factor analysis is a statistical technique for data reduction -- that is, to reduce data to underlying, or latent, factors that may not be apparent to the researcher. In simple terms, statistical programs look for strong relationships between variables to find the most significant factors in the data. Some variables may be related to one or more factors, but the factors themselves are mathematically unrelated. By example, a factor analysis of a year's worth of weekend credit card purchases for fifty men would turn up receipts for golf balls, golf tees, golf course memberships, beer, bowling balls, bowling shoes, beer, rakes, lawn bags, mulch, and soda. This analysis would suggest the three factors of

GOLF, BOWLING and YARD WORK. These expenses each load on the factors -- very strongly (.usually +/- .70 to .99), strongly (+/- .50-.69), moderately (+/- .30-.49), weakly (+/- .10-.29), or almost insignificantly (approaching 0). In this example, beer and cola might load weakly on all three factors, while the other variables would load strongly on one factor each. Each man would receive three factor scores based on how much he spent (e.g., a Golf Index score, Yard Work Index score, etc.). The next section will explain how the factor analysis operates with variables from Nigeria.

Socioeconomic Variables in Nigeria

A developing nation such as Nigeria often provides a favorable environment for criminals. As a country begins to grow, urbanization forces different ethnic and religious groups to interact. For this reason, rural Nigerians report less victimization and less fear of crime than urban dwellers.⁵ The benefits of growth, however, outweigh the risks of crime. The tension between the goals of long term growth and short term safety can make a country very unstable. When studying a complex problem such as crime in Nigeria, the military Design Methodology recommends devoting substantial time to understanding the environment. This research project compiled measures of various social, demographic, public health/public safety, cultural, environmental, economic, and security characteristics of states in Nigeria to analyze why some Nigerian states are safer than others.

Social variables included the following: measures of female literacy, gender parity in primary and secondary school, orphan rates, and enrollment in Federal College

⁵ Ebai S. Eban, "Fear of Crime and Crime Control Initiatives," in Etannibi E.O. Alemika and Innocent C. Chukwuma, eds, "Crime Victimization, Safety, and Policing in Nigeria," 2011, 96.

by state of origin. Demographic and public health/public safety variables included the following: total household size, comprehensive AIDS prevention knowledge, measures of hospital births (vice home births), low birth weight babies, stunted children (i.e., undersized for their age), water treatment, use of improved sanitation measures, immunization rates, preventive treatment of children for malaria, HIV projections, total population, and indicators for regions within Nigeria (north, west, mid-west and east). Cultural variables included the following: measures of early sexual initiation, support for and actual practice of Female Genital Mutilation and Cutting (FGM/C), early marriage, a substantial age gap between spouses (usually an older husband and a younger wife, with at least ten years separation), and substantial sexual age gaps (i.e., older men initiating younger women to sex, also with ten year or more separation). Environmental variables include the following: the type of flooring in households (concrete vice mud/wood/other) along with the sanitation and water measures mentioned above. Economic variables included the following: measures of child labor, types of cooking fuel used (with kerosene dominating rural areas and natural gas, more urban),⁶ rates of farming for men and women (including paid employees and unpaid subsistence/family farming), and measures of poverty (e.g., those under the United Nations' established Dollar per Day poverty line, those listed as Food Poor (another UN development metric), income inequality, and unemployment). Security variables included the following: the male prison population rate, police station density, police officer saturation, measures of police corruption, measures of police approval, and measures of traffic accidents and seatbelt use. Finally, regional indicator variables (coded as 1 for applicable states and 0 for those not included) capture any independent effects of states falling under the

⁶ Discussion with Ghanaian Navy CAPT Faidoo, September 2012.

Nigerian declared State of Emergency,⁷ the 2012 U.S. Department of State Advisory,⁸ and those under Sharia law.⁹ These variables are explained in greater detail in Annex A. The socioeconomic variables will be used to test various theories of crime which will be explained next.

Theories of Crime

Criminologists have developed several competing and complimentary theories of crime. Researchers and political philosophers have long maintained that poverty causes crime. Economist Dr. Richard Freeman posits that poverty impacts crime in at least two ways: 1) joblessness and unemployment raise incentives for crime, and 2) inequality and low wages contribute to increased crime.¹⁰ As such, Nigerians, facing economic strife, may commit crimes against other Nigerians to make money. Other researchers believe that the community can impact crime. Sociologist Dr. Robert J. Sampson concludes that the body of research supports that dense, urban housing is more violent than rural communities or dispersed housing areas.¹¹ With respect to the family, many studies have found that families serve as a deterrent to crime while those who live alone are more likely to be victims of crime. Families also provide a social control structure that depresses crime among youths.¹² More broadly, organized communities experience far

⁷ The four states are Yobe, Borno, Plateau, and Niger. Tomi Oladipo, "Boko Haram Attacks prompt Nigerian State of Emergency," BBC, 1 Jan 2012, accessed 24 October 2012, <http://www.bbc.co.uk/news/world-africa-16373531>

⁸ The states are Bayelsa, Delta, Edo, Plateau, Gombe, Yobe, Bauchi, Borno, and Kano states. Department of State Bureau of Consular Affairs, "Travel Warning -- Nigeria," June 21, 2012, accessed 24 October 2012, http://travel.state.gov/travel/cis_pa_tw/tw/tw_5739.html.

⁹ Nine states have implemented full Sharia law. Three have implemented partial Sharia law. See Appendix A for specifics, http://en.wikipedia.org/wiki/Sharia_in_Nigeria as well as BBC, "Nigeria Sharia Architect Defends Law," 21 March 2012, accessed 24 October 2012, <http://news.bbc.co.uk/2/hi/africa/1885052.stm>.

¹⁰ Richard B. Freeman, "The Labor Market," in *Crime*, ed. James Q. Wilson and Joan Petersilia.. San Francisco: ICS Press, 1995. 191.

¹¹ Robert J. Sampson, "The Community," in *Crime*, ed. James Q. Wilson and Joan Petersilia.. San Francisco: ICS Press, 1995. 196-197.

¹² Ibid, 197.

less crime than those distinguished by social disorganization. Sampson says, "The social networks among adults and children in a community are particularly important in fostering the capacity for collective socialization and supervision."¹³ In Nigeria, one might expect that more cohesive and homogenous communities would experience less crime. Finally, the role of police in preventing crime is an obvious line of inquiry. The effect of policing in suppressing crime largely depends on what kind of police a state has. Criminologist Dr. Lawrence Sherman examines the Western claim that "more cops mean less crime" and finds that police are most effective if they are concentrated in the spots with the most crime (e.g., "crime focused policing" rather than a fair-share distribution).¹⁴ American models, however, presuppose a level of professionalism and responsiveness that is likely absent among Nigerian police. As Nigerian survey researchers Omololu Soyombo and Waziri B. Adisa say in a CLEEN report, "The police force is usually the most visible, nearest and perhaps most accessible agency to the citizens... Invariably, it is also the most vilified criminal justice agency."¹⁵ These theories are important to assess the drivers of crime in society.

Initial Findings

Measures of different crimes and reports of personal safety are interrelated. Table 1 shows the correlation matrix of these variables. The table depicts relationships between pairs of variables. The stronger the relationship, the higher the number, with 0 indicating no relationship and 1.0 indicating a perfect relationship. Several interesting relationships

¹³ Sampson, 199.

¹⁴ Lawrence W. Sherman, "The Police," in *Crime*, ed. James Q. Wilson and Joan Petersilia.. San Francisco: ICS Press, 1995. 327-348.

¹⁵ Omololu Soyombo and Waziri B. Adisa, "Public Perception of Criminal Justice Agencies in Nigeria, " in Etannibi E.O. Alemika and Innocent C. Chukwuma, eds, "Crime Victimization, Safety, and Policing in Nigeria," 2011, 116.

underpin the different questions in the CLEEN survey. First, reports of murder in the household show the expected positive, strong and statistically significant relationships one would expect with victimization, rape, attempted murder, and robbery. Murder also is positively related with feeling safe at night and in one's neighborhood. Murder is a key crime warranting deeper analysis; no crime is more permanent than loss of life. Second, victimization rates (i.e., self-reporting of being victim of a crime over a three year period) are most strongly correlated with assault and robbery. This suggests that in Nigeria, people are likely most threatened by being beaten, hit, mugged, and robbed. Third, the measures of rape in the household and reports of the respondent personally being raped are closely related. This validates the accuracy of household reporting. Between the two, self-report of rape is the stronger measure of crime. Personal experience with rape is positively, strongly and significantly correlated with nearly every measure of crimes against persons, crimes against property and feelings of safety. This variable is a must-select for further analysis. Fourth, cell phone theft is a unique variable. An event that would draw anger and pose a huge inconvenience in America appears to have significance in Nigeria because it is positively and significantly related to assaults and robberies. The increase of technology corresponds to an increase in secondhand markets for used cell phones. CLEEN reports that street boys and thugs will snatch handbags with the expectation that even the poorest woman with no cash will still have a mobile phone. Over 24% of the respondents in the CLEEN survey had suffered mobile phone theft in the past three years.¹⁶

¹⁶ Moses U. Ikoh, "Criminal Victimization in Nigeria: Pattern and Trend," in Etannibi E.O. Alemika and Innocent C. Chukwuma, eds, "Crime Victimization, Safety, and Policing in Nigeria," 2011, 58-59.

TABLE 1 - Correlation Matrix of Crime Variables

VARIABLE	Murder	Assault	Victimiz.	Rape	Attempt Murder	Robbery	Pers. Raped	Cell Phone Theft	Burglar	Bribed	Safe at Day	Safe at Night	Safe in Neighbhd
Murder		.30	.32*	.68**	.72**	.41*	.77**	--	---	.13	-.29	-.33*	-.37**
Assault	.30		.80**	.19	.30	.42**	.28	.50**	.54**	-.17	---	-.18	-.21
Victimization	.33**	.80**		.30	.35*	.43**	.29	.56**	.68**	---	-.12	-.18	-.15
Rape	.68**	.19	.30		.61**	.37*	.81**	--	--	---	-.38*	-.43**	-.46**
Attempted Murder	.72**	.31	.35*	.61**		.37*	.71**	.16	.35*	.18	-.26	-.25	-.18
Robbery	.42*	.42**	.43*	.37*	.37*		.46**	--	.33*	.15	-.12	-.46**	-.33*
Personally Raped	.77**	.28	.29	.81**	.71**	.46**		--	.31	.23	-.39*	-.46**	-.48**
Cell Phone Theft	---	.50**	.56**	---	.16	--	--		.44**	-.17	---	--	--
Burglary	---	.54**	.68**	---	.35*	.33*	.30	.44**		.25	-.21	-.32	-.27
Bribed	.13	-.17	---	---	.18	.15	.23	-.17	.26		---	--	--
Safe at Day	-.29	--	-.12	-.38*	-.26	-.12	-.39*	--	-.21	---		.70**	.76**
Safe at Night	-.33*	-.19	-.18	-.43**	-.25	-.46**	-.47**	--	-.32	---	.70**		.84**
Safe in Neighborhood	-.37*	-.21	-.15	-.46**	-.18	-.33*	-.48**	--	-.27	---	.76**	.84**	

Legend:

** = significant at .01 level

* = significant at .05 level

--- = correlation < .10

--- = very strong correlation

--- = strong correlation

Table 2 - Factor Analysis

VARIABLE	Traditional Islamic Factor 1 (29% variance explained)	Female Agrarian Factor 2 (12% variance explained)	Public Health & Safety Factor 3 (6.6% variance explained)	Poverty Factor 4 (6.0% variance explained)	Police Factor 1 (5.6% variance explained)
Female Literacy	-.67	.24	.29	-.18	.42
Household Total	.84	---	---	---	---
Early Sex	.69	-.11	---	-.22	-.12
Child Labor	---	.14	---	-.10	.16
FGM Approval	-.71	-.13	---	---	-.13
AIDS Knowledge	-.22	---	.78	-.20	---
FGM	-.69	---	---	-.11	-.17
Gender Parity Primary	-.68	.21	.19	-.15	.17
Gender Parity Secondary	-.78	.16	.12	---	---
Hospital Born	-.85	.10	.36	---	---
Low Birth Weight	.52	---	-.36	.20	-.15
Stunted Children	.85	-.12	---	---	-.27
Early Marriage	.90	-.12	---	---	-.13
Orphans	-.65	.66	---	---	---
Water Treatment	-.60	-.19	.20	.15	---
Improved Sanitation	-.37	.26	.62	---	---
Marriage Age Gap	.42	.48	.22	.21	.16
Sex Age Gap	.92	-.11	---	---	---
Immunization	-.70	-.12	.20	-.19	.15
Anti-Malarial	-.20	-.14	.76	-.19	---
Kerosene	-.69	-.29	.32	-.18	-.15
Natural Gas	.66	.32	-.33	.16	.12
Female Farmers	-.13	.94	---	---	---
Male Farmers	.76	.48	---	.11	-.14
Female Ag Employees	.14	.74	.11	---	---
Male Ag Employees	.44	.48	---	.17	-.10
Male Family Farmers	.64	.54	---	.15	-.19
Female Family Farmers	---	.88	-.15	.11	.13
Dollar per Day	.13	---	-.10	.95	---
Food Poor	.13	---	-.10	.95	---
Income Inequality	.22	.12	-.10	---	---
Unemployment	-.13	---	---	.29	.36
Federal College	-.33	-.16	-.14	---	---
HIV Projection	---	---	-.11	.19	.82
Population	.19	-.16	.48	---	-.65
Prison Population	-.22	.20	.32	.32	.39
Police Stations	-.25	---	-.40	---	.18
Police	-.15	-.15	.18	---	.86
Corruption	-.35	.30	.20	-.43	---

Police Approval	.48	-.20	-.10	-.17	---
Seatbelt Use	-.62	---	.33	---	---
Traffic Accident Fatalities	---	---	---	---	---
Concrete floor	-.79	---	.35	---	---
State of Emergency	.20	---	---	---	---
DoS Advisory	.17	---	-.24	---	-.16
Sharia	.88	-.16	---	---	-.20
East	-.33	.68	---	---	.40
West	-.40	-.40	.21	-.42	-.23
North	.75	-.24	-.11	.29	.23

59.7% total variance in the data is explained by these five factors.

--- = < .10

The factor analysis shown in Table 2 identifies five distinct underlying characteristics that exist in modern Nigeria. Those variables with a positive loading are positively related to the overall factor. Those with a negative loading are inversely related to the overall factor. Variables that have a very large factor loading (+/- .70-.99 in the table) are very strongly related to a respective factor. Those with a strong factor loading (+/- .50-.69) are strongly related to a particular factor, loadings of +/- .30-.49 are moderately related to a factor, loadings of +/- .10-.29 are weakly related to a factor, and those with low loadings of +/- 0-.09 are likely unrelated to a factor.

Of note, the first factor alone explains *more than 29% of all the variation in this dataset*, making it a powerful explanatory factor (compared to the other factors, which each explain between 5-12% of the variation in the dataset). When one reviews the variables that load most heavily on this factor, it appears to paint a picture of *traditional Islamic communities*. Consider these characteristics: low female literacy, large families, early sex, lack of approval and lack of practice of FGM (more common in traditional African faiths than in Islam), low gender parity in primary and secondary schools, low rates of hospital born babies, early marriage, low rates of orphans, low rates of improved water treatment and sanitation, common occurrence of marriage gaps and age gaps at first sexual experience, primarily male farming, and rural-style houses with

no concrete flooring. Of particular note, these variables are all highly related to Sharia law states (.88 loading) and northern states (.75). Factor 1 appears to divide the country into northern and non-northern states, though some non-northern states will share some traits.

The second factor explains 12% of the data and points to *female agrarian communities*. These variables load heavily on the factor: high rates of orphans, high rates of female farming, and high rates of female agricultural employment. Eastern states such as Imo and Ebonyi load heavily on this factor (.68). The third factor points to *public health and safety* programs. This factor explains only 6.6% of the variation in the data. Variables that load on this factor are comprehensive AIDS prevention knowledge, improved sanitation, and use of anti-malarial drugs for children. Seatbelt use and concrete flooring used in houses also load moderately on this factor. States that score high on this factor also do not rank on the State Department Advisory list and are more common in the west (e.g., Lagos). The fourth factor explains 6% of the data and suggests *poverty*. This factor has the highest loadings for the variables of One Dollar per Day poverty rates and Food Poor rates. The fifth and final factor is not as clear as the first four due to two disparate variables with high loadings. The highest loading is the number of police per capita, followed closely with HIV projections.¹⁷ This factor also is related negatively with populous states. These dynamics might point to high-growth communities where the Nigerian government establishes a new police presence. For the sake of this analysis, we will call it simply *police*. It explains 5.6% of the data.

In order to explore how well these factors explain different crimes, the next step is to conduct a logistical regression with the different crimes as dependent variables (i.e., the variables

¹⁷ Lt Col Will Wando, USMC, discussed a similar phenomenon with peacekeeping forces and high HIV infection, class presentation, U.S. Naval War College, 29 October 2012.

one is trying to explain) and the five factors as independent variables (i.e., predictors). An example regression equation is the following:

$$\text{Murder} = \alpha + \beta_1 (\text{Traditional Islamic}) + \beta_2 (\text{Female Agrarian}) + \beta_3 (\text{Public Health and Safety}) + \beta_4 (\text{Poverty}) + \beta_5 (\text{Police}) + \varepsilon.$$

In this example, murder is the reported murder rate for each state (dependent variable). The statistical software takes known crime rates and factor scores and estimates the remaining parameters. Alpha (α) is the intercept (interpreted as baseline murder rate). The coefficients for the factor scores (β) are the amount that each saved factor score from the previous step is multiplied. The error term (ε) is anything not explained by the model. The overall model fit is the "R-squared" statistic -- a number between 0 and 1.0 explaining how much variation in the dependent variable is explained by the model. An R-squared of, say, .10, explains 10% of the variation of a particular crime, with the higher the number, the better the fit.

If the different theories of crime are correct, specific types of communities will be most predictive of crime. The northern part of Nigeria, for example, has been a hotbed of extremist activity and hosts the Boko Haram.¹⁸ If extremism is the main driver of crime in Nigeria, increased factor scores on Factor 1 (*traditional Islamic*) would be significantly related with predicted increases in victimization and other crimes. On the other hand, these states are run with Sharia law and are more traditional and less modern than the rest of Nigeria. States with high scores on the *traditional Islamic* factor may have lower crime rates if social control and community norms matter more. If poverty is a major cause of crime, the *poverty* factor (Factor 4) should be a good predictor of crime, especially with respect to crimes against property (e.g., burglary). If victim-oriented theories of crime are correct, high scores on the *rural agrarian* factor (Factor 2) with its high rates of female subsistence farming and orphans should predict

¹⁸ Lecture on Boko Haram by Dr. Richard Lobban, U.S. Naval War College, 17 October 2012.

higher rates of all crimes, especially crimes against women. High scores on *public health and public safety* (Factor 3) suggest a commitment to the community and a fundamental respect for life which should be negatively related to crimes. Finally, states with high scores on the *police factor* (Factor 5) will be positively related to reported feelings of being safe and negatively related to crime if the police are effective.

Results of linear regressions of these five factors and the variables of 1) murder, 2) personal rape, 3) victimization, 4) assault, 5) burglary, and 6) feeling safe in one's neighborhood are shown in Table 3. For all six dependent variables, the intercepts are positive and statistically significant (e.g., we can be 99% confident that this result is not accidental). Each estimate is the baseline rate of crime or perception of safety. A state starts with a 1.3% baseline for murder, for example. The baseline for feeling safe in one's neighborhood is 84% of the population. With respect to predicting murder rates, none of the factors stands out as a significant predictor. However, *public health and public safety* approach statistical significance. There is 80% confidence that this relationship is not coincidental. To address the "so what?" of this finding, one can run some predictions. Across Nigerian states, 0 to 6 percent of the survey respondents reported a murder in the household from 2007-2009. These same states have factor scores on *public health and public safety* from -2.04 to 2.26 (a range of 4.30 points). When this range is multiplied by the coefficient (-.35), the predicted difference in murder from the lowest to the highest state ($4.30 * -.35$) would be a decrease of 1.5 percentage points, which would be substantial. In other words, the states most committed to public health and safety have 1.5% lower predicted murder rates. Overall, the equation for murder explains about 13% of the variation in this crime (as shown by the R-squared statistic of .13). Communities that invest in health and safety may provide disincentives to murder.

For personal rape, the *female agrarian* factor, *public health and safety* and *poverty* all show promise as predictors of violence. *Poverty* is the most statistically significant. The .11 coefficient is 95% likely to be significant. Nigerian states range in rape rates from nearly 0 to 1.3 percent self-reported in this data. States have factor scores on *poverty* from -2.52 to 1.48 (a range of 3.99 points). The predicted difference from the lowest to the highest state (.11 coefficient * 3.99) would be an increase of .43 percentage points in rape, which is also substantially important given the severity of the crime. Overall, this model explains about 20% of the variation in rape (as shown by the R-squared statistic of .20). This regression suggests the possibility that poorer communities victimize their women more.

For victimization overall, no single factor explains crime with statistical significance. This result suggests that all crimes are not equal. As such, it is important to disaggregate what types of crimes people have experienced and explore how varying victim experiences impact the overall perception of safety. For assault and burglary, none of these factors explains variation in the less violent crimes very well. It appears that socioeconomic factors have the most predictive power on the violent and very personal crimes of murder and rape.

Finally, where the five factors fail to predict specific crimes well, these factors perform differently together in modeling overall perceptions of safety in one's neighborhood. This model has the best overall fit of the six equations (over 43% of the variation in feeling safe is explained by the five factors). Since this dependent variable is likely the best overall measure of how well people feel they are being taken care of by their government, policymakers should take particular note. To begin with, the baseline (intercept) of 84 can be interpreted as the start point for feeling safe. Communities start with 84% of all citizens feeling safe; this number then increases or decreases based on movement in the other factors. The most statistically significant predictor of

feeling safe or not is a state's rating on the *female agrarian* factor (Factor 2). Nigerian respondents range in reported rates of feeling safe from 49 to 97 percent across states. The states have factor scores on Factor 2 from -2.04 to 2.26 (a range of 4.31 points). The predicted difference from the lowest to the highest scoring state would be *a decrease of 25% percentage points* in perceptions of safety, which should be of tremendous interest to Nigerian officials and policymakers. Also of note, the *police* factor (Factor 5) is statistically significant. States have a range of 5.92 on this variable (from scores of -1.69 to 4.22). The states with the highest factor scores would be predicted to have 15% lower safety ratings, all other factors held constant. This is a troublesome finding as it suggests that more police per capita does not increase feelings of safety within Nigeria. The last point to note is that the *traditional Islamic* factor (Factor 1) is positively related with perceptions of safety. While this variable only approaches statistical significance (there is 18% likelihood the finding is coincidental or accidental), it is definitely worth further study. This factor, which runs in all the wrong directions with respect to quality of life, public health, and equality for women, also appears to have a stabilizing factor in society. States have scores from -1.36 to 1.98 on this factor (a range of 3.35). From the lowest to the highest score, there is a 6.4% predicted increase in perceived public safety. All together, this model strongly suggests that Nigeria may be on the path to insurgent influence. The factors of a poor working population, coupled with ineffective police and a viable internal security alternative (Sharia law) should be of great concern to decision makers.

Table 3 - Regression Analysis**Dependent Variables**

Independent Factors	Murder	Personal Rape	Victim-ization	Assault	Burglary	Safe Neighborhood
Intercept (Baseline)	1.30***	.27***	48.98***	7.79***	1.97***	84.243***
Factor 1 - Traditional Islamic Society	-.24	-.049	.11	.096	-.044	1.92+
Factor 2 - Female Agrarian Society	.26	.089+	2.48	.48	.13	-5.89***
Factor 3 - Public Health and Safety	-.35+	-.090+	-3.88	-.59	-.16	-.28
Factor 4 - Poverty	.17	.11*	2.58	.63	.26	-1.203
Factor 5 - Police	.10	.051	-.54	.93	.16	-2.60*
TOTAL MODEL FIT (R-Squared)	.13	.20	.08	.08	.09	.43
N= (number of states)	37	37	37	37	37	37

Legend:
 Statistical significance
 *** p<.001
 ** p<.05
 *p<.10
 +p<.20

Cautions and Future Research

While these findings are disturbing, they are preliminary. Researchers should attempt to replicate these models with larger datasets and ensure that important sub-populations are included and properly weighted in the sample. Subsequent research should examine attitudes of people over time in order to examine trends rather than just a three-year snapshot. This research only provides correlations between variables. It is difficult with the current dataset to determine which events occur first in the lives of the respondents. Time series analysis is necessary in order to better establish causality (i.e., poverty actually causes crime rather than just co-varies or coincides with crime). Furthermore, key measures of terrorist and extremist attacks, media

coverage, internet penetration, and court data would better capture the complicated dynamics of crime. This study is missing any measure of religion with the exception of the Sharia law measure. It would be important to include these sub-group measures in further studies. Finally, the data only captures farming and fails to include mining, petroleum, and other key sectors of the economy.

Crime data is also inherently flawed as many crimes go unreported. Crime data can be negatively biased by fear or by a lack of law enforcement. It can also be artificially inflated by a positive response of the police (e.g., more police coverage results in more crimes reported). More police may also uncover more crime -- not necessarily indicating an increasing problem, but an accelerating solution. In corrupt societies like Nigeria, organizations like CLEEN are necessary to bypass corrupt officials by directly talking to the people. It would be interesting to compare victim-reported crimes with government-reported crimes to identify those states with the biggest difference between the people and the state. It is also important to further study what methods Nigerian police use to track, archive and address crime statistics.

Conclusion: Policy Implications for the United States

In conclusion, poor farming areas in Nigeria appear to be under threat of crime. Women are particularly in danger. Northern states with Sharia law may not be perceived as lawless to Nigerians as they appear to foreigners. If these findings can be replicated and validated, the United States should consider investing more in the Nigerian government developing poor farming areas and protecting its women and children as a safeguard against criminal exploitation and recruitment. Such efforts would pay off in better relations between the people and the central government. If these findings are true, and more police are related to lower reported rates

of personal safety, the Nigerian government has a serious problem that threatens future unrest. The police are the most proximate face of the government in most communities. If they are failing, the federal government is failing. Counter Corruption, Rule of Law and Community Policing training should be a high priority for the Nigerian government. Overall, a population-centric approach may be more effective than enemy-centric operations against Boko Haram and other Islamic extremists. Lines of effort directed toward special operations training should be complimentary to professional police training, not prioritized above it. When U.S. leaders think of crime in Nigeria, they would be well served to think first about ordinary Nigerian victims instead of extremist threats to the U.S. and internet fraud. Until the Nigerian government can protect its people, Nigerians -- and thus our national interests in the region -- are at risk.

Annex A: Socio-Economic Variable Definitions

(Independent Variables)

Source: Nigerian National Bureau of Statistics (NBS)¹⁹. All data is archived on the country data portal (available at <http://nigeria.prognoz.com/DataAnalysis.aspx>) except for those referenced separately below.

Female Literacy: Percent Adult Literacy in any Language, Female, 2007
Household Total: Average Household Size by number of people, 2007
Early Sex: Percentage having first sex at 15-19, of "young people" (24 and younger), 2007
Child Labor: Percentage child labor among 5-14 years-old, 2007
FGM Approval: percentage approval for female genital mutilation/cutting among 15-49 year old adults, 2007
AIDS Knowledge: Percentage with "comprehensive knowledge" of HIV/AIDS prevention among 15-24 years-old, 2007
FGM: occurrence of Female Genital Mutilation/Cutting among daughters 15-49 yr old, 2007
Gender Parity Primary: Gender Parity Index for Primary School (Ratio of enrolled girls to boys), 2007
Gender Parity Secondary: GPI for secondary schools, 2007
Hospital Born: Percentage institutional delivery (born) of 15-49 years-old, 2007
Low Birth Weight: Percentage of low birth weight among 0-2 years-old, 2007
Stunted Children: Percentage of children who were stunted, severe (Height-for-age Z-score < -3), 2007
Early Marriage: Percentage married before 15, of 15-49 years-old, 2007
Orphans: Percentage of children with both parents dead, 2007
Water Treatment: Percentage of total water treatment, 2007
Improved Sanitation: Percentage using improved sanitation facilities (human waste), 2007
Marriage Age Gap: percentage of very young people with 10+year gap with spouse, of those married, of 15-19 years-old, 2007
Sex Age Gap: percentage of 15-24 years-old women who had sex with a man 10 yrs or more older in past 12 months, 2007
Immunization: Percentage of fully immunized children 12-23 months, 2007
Anti-Malarial: percentage of under five years old (0-59 months) receiving anti-malarial treatment, 2007
Kerosene: Percentage cooking with kerosene, 2007
Natural Gas: Percentage cooking with natural gas, 2007
Female Farmers: number of female farmers, per thousand, 2007. ²⁰

¹⁹ Nigerian National Bureau of Statistics, *Social Statistics in Nigeria 2009*, <http://nigeria.prognoz.com/ResourceCenter/Default.aspx>, accessed 25 OCT 2012.

²⁰ Where the Nigerian dataset included no data, the author inserted a zero value. The NBS legend did not indicate missing data or non-available data. Future analysis should confirm this null value with Nigerian statisticians.

Male Farmers: number of female farmers, per thousand, 2007.
Female Ag Employees: number of female paid agriculture employees, per thousand, 2007
Male Ag Employees: number of female paid agriculture employees, per thousand, 2007
Male Family Farmers: number of male unpaid family farmers, per thousand, 2007
Female Family Farmers: number of female unpaid family farmers, per thousand, 2007
Total Farmers: total number of farmers, all genders, per thousand, 2007
Dollar per Day: Percent earning a dollar per day per person or less, poor, based on adjusted PPP (purchasing power parity)
Food Poor: Percentage of "food poor," 2010 (eating below a minimum number of calories) ²¹
Income Inequality: "income inequality, number," 2010 [0 is perfect equality and 1 is perfect inequality] ²²
Unemployment: Unemployment rate, 2007
Federal College: number enrolled in fed college by state of origin, 2006, per million
HIV Projection: projected HIV population, 2007, per million
Population: Total population of state in millions, 2006 ²³
Prison Population: Male prison population by state, per million, 2008 ²⁴
Police Stations: Number of police stations by state, per million population, 2007 ²⁵
Police: Number of total policemen (senior, inspectors, "rank & files"), 2007 ²⁶
Corruption: Percent of respondents reporting increase of corruption in their states. ²⁷
Police Approval: Percent of respondents reporting the police were doing "very good" or "good" in the state. ²⁸
Traffic Accidents: Reported traffic accidents by respondents, percent, over three year period (2007-2009). ²⁹
Seatbelt Use: Self report (percentage) of "regularly" using seatbelts. ³⁰
Traffic Accident Fatalities: Number of reported fatalities in traffic accidents, 2007, by million population ³¹

²¹ UN Statistics Division, *Handbook On Poverty Statistics: Concepts, Methods And Policy Use*, Special Project on Poverty Statistics, United Nations Statistics Division, December 2005, page 87: "National food poverty lines are based on minimum nutritional requirements or thresholds. A person is counted as food poor if the nutritional content of the food(s) he consumes is less than the prescribed threshold." While the Nigerian website did not specify, most nations use around 2000 calories a day, sometimes adjusted for rural and urban. accessed 25 OCT 2012, http://unstats.un.org/unsd/methods/poverty/pdf/un_book%20final%2030%20dec%2005.pdf

²² http://en.wikipedia.org/wiki/Income_inequality_metrics and http://en.wikipedia.org/wiki/List_of_countries_by_income_equality. The NBS statistic appears to be the Gini coefficient.

²³ NBS, Table 7.1a.

²⁴ NBS, Table 6.12.

²⁵ NBS, Table 6.17.

²⁶ NBS, Table 6.18.

²⁷ CLEEN, Table 5, p. 28.

²⁸ CLEEN, Table 10, p. 34.

²⁹ CLEEN, Chart 1, p. 105.

³⁰ CLEEN, Table 4, p. 109.

Concrete floor: Percent of population with concrete flooring in home. ³²
State of Emergency indicator: Indicator variable for states the Nigerian president declared state of emergency due to Boko Haram attacks.
DoS Advisory indicator: Indicator variable for states listed in the 2012 U.S. DoS Travel Advisory
Sharia indicator: Indicator variable for states with Sharia law
Regional indicators: Four indicator variables for states in north, west, mid-west, and east

Note 1: Population normalization was done using 2006 population statistics

Note 2: Full Sharia states are Zamfara, Kano, Sokoto, Katsina, Bauchi, Borno, Jigawa, Kebbi, and Yobe. Partial Sharia applies to large Muslim populations in Kaduna, Niger, and Gombe

Note 3:

Northern states are Abuja (FCT), Adamwa, Zamfara, Yobe, Taraba, Sokoto, Plateau, Jigawa, Gombe, Niger, Nassarawa, Kwara, Kogi, Kebbi, Katsina, Kano, Kaduna, Borno, Benue, Bauchi.

Western states are Ekiti, Lagos, Oyo, Ogun, and Ondo

Midwestern states are Edo and Delta.

Eastern states are Anambra, Akwa Ibom, Imo, Rivers, Abia, Cross River, Bayelsa, Ebonyi, and Enugu.

Note 4: State Department Advisory states are Yobe, Plateau, Gombe, Kano, Borno, Bauchi, and Bayelsa. The Nigerian state of emergency covered Borno, Yobe, Niger, and Plateau.

³¹ NBS, Table 6.4.

³² As opposed to mud, dirt, wood or other materials listed.

Annex B: Crime Variable Definitions

(Dependent Variables)

All data is from CLEEN Foundation (Centre for Law Enforcement Education) at www.cleen.org

Victimization: Percent personal victimization experienced over three years (2007-2009). ³³
Murder: Murder victimization of household member, percent annual average, 2007-2009. ³⁴
Attempted Murder: Attempted personal murder victimization, percent annual average, 2007-2009.
Rape: Rape victimization of household member, percent annual average, 2007-2009. ³⁵
Personal Rape: Personal rape victimization, percent annual average, 2007-2009. ³⁶
Assault: Assault victimization of household member, percent annual average, 2007-2009. ³⁷
Cell Phone Theft: Personal cell phone theft, percent annual average, 2007-2009. ³⁸
Bribery: Personal experience being asked for a bribe by a government official, percent, 2009. ³⁹
Robbery: Personal robbery victimization, percent annual average, 2007-2009. ⁴⁰
Burglary: Personal burglary victimization, percent annual average, 2007-2009. ⁴¹
Safe at Day: Total percentage reporting feeling "very safe" or "fairly safe" at home during the day, 2007-2009 average. ⁴²
Safe at Night: Total percentage reporting feeling "very safe" or "fairly safe" at home at night, 2007-2009 average. ⁴³
Safe in Neighborhood: Total percentage reporting feeling "very safe" or "fairly safe" in their neighborhoods (all times of day), 2007-2009 average. ⁴⁴

³³ CLEEN, Table 3, p. 25.

³⁴ CLEEN, Table 2, p. 46.

³⁵ CLEEN, Table 5, p. 49.

³⁶ CLEEN, Table 11, p. 57.

³⁷ CLEEN, Table 3, p. 47.

³⁸ CLEEN, Table 12, p. 58.

³⁹ CLEEN, Table 7, p. 76.

⁴⁰ CLEEN, Table 10, p. 56.

⁴¹ CLEEN, Table 13, p. 59.

⁴² CLEEN Table 2, p. 90.

⁴³ CLEEN Table 3, p. 91.

⁴⁴ CLEEN Table 4, p. 93.

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